

WHAT IS CLAIMED IS:

1. Equipment for soldering and bonding a flexible printed circuit board on a printed circuit board, wherein the flexible printed circuit board is made of thermoplastic resin, the equipment comprising:

a heater head for pressing and heating the flexible printed circuit board on the printed circuit board; and

a jig for preventing the thermoplastic resin composing the flexible printed circuit board from flowing out in a case where the flexible printed circuit is heated by the heater head,

wherein the jig and the heater head have a predetermined positional relationship in such a manner that the jig is to be disposed between the flexible printed circuit board and the heater head when the flexible printed circuit board is pressed and heated by the heater head,

wherein the jig includes a thin plate having a base plate and a wing plate,

wherein the base plate is parallel to a top surface of the heater head to be sandwiched between the flexible printed circuit board and the heater head, and

wherein the wing plate is disposed on both sides of the base plate to be bent from the base plate.

2. The equipment according to claim 1,

wherein a part of the flexible printed circuit board is to be pressed and heated by the heater head through the base plate so that the part is melted,

wherein other part except for the part to be melted is not to be melted, and

wherein the part to be melted is surrounded by the other part not to be melted, the printed circuit board and the base plate so that the thermoplastic resin composing the part to be melted does not flow out in a case where the part is melted.

3. The equipment according to claim 1,  
wherein the printed circuit board is rigid,  
wherein the thin plate is made of SUS stainless steel,  
wherein the jig further includes a heat sink made of copper,  
and

wherein the wing plate is mounted on the heat sink so that heat of the wing plate is conducted to the heat sink.

4. The equipment according to claim 3,  
wherein the base plate does not directly contact the heat sink so that the thin plate has a temperature distribution in such a manner that temperature of the base plate is higher than that of the wing plate.

5. The equipment according to claim 3, further comprising:  
an electrode for supplying electricity to the heater head,  
wherein the heater head is mounted on the electrode, and  
wherein the jig is movably supported by the electrode through an installation member so that the jig is movable in a direction perpendicular to the base plate.

6. The equipment according to claim 5,  
wherein the heat sink is cooled by an air supplied from an  
outside fan.

7. The equipment according to claim 6,  
wherein the heat sink includes a notch,  
wherein the installation member is made of insulation material,  
and includes a through hole, and  
wherein the air is introduced to the heat sink through the  
notch and the through hole.

8. The equipment according to claim 1, further comprising:  
a heating stage for preliminarily heating the printed circuit  
board and for mounting the printed circuit board,  
wherein the heating stage includes a base and an attachment  
table disposed on the base, and  
wherein the printed circuit board is mounted on and adhered  
to the attachment table.

9. The equipment according to claim 1,  
wherein the heater head is hollow,  
wherein the heater head has a top end having a horizontal plate  
and a pair of vertical plates disposed on both sides of the horizontal  
plate, and  
wherein the horizontal plate and the vertical plates have a  
thickness, which is thinner than other portions.

10. The equipment according to claim 9,  
wherein the top end of the heater head further includes a pair of connection portions disposed on upper ends of the vertical plates, respectively,  
wherein the horizontal plate is parallel to the base plate,  
wherein the vertical plate is perpendicular to the horizontal plate, and  
wherein the connection portions are protruded obliquely and upwardly from both upper ends of the vertical plates so that the connection portions separate away.

11. The equipment according to claim 10,  
wherein the horizontal plate, the vertical plates and the connection portions are capable of generating heat.

12. A method for soldering and bonding a flexible printed circuit board on a printed circuit board, wherein the flexible printed circuit board is made of thermoplastic resin, the method comprising the steps of:

pressing the flexible printed circuit board on the printed circuit board by using a heater head through a jig, and

heating the flexible printed circuit board by using the heater head through the jig,

wherein the jig prevents the thermoplastic resin composing the flexible printed circuit board from flowing out in a case where a part of the flexible printed circuit is melted by the heater head through the jig.

13. The method according to claim 12,

wherein the jig and the heater head have a predetermined positional relationship in such a manner that the jig is to be disposed between the flexible printed circuit board and the heater head in the step of pressing the flexible printed circuit board with the heater head,

wherein the jig includes a thin plate having a base plate and a wing plate,

wherein the base plate is parallel to a top surface of the heater head to be sandwiched between the flexible printed circuit board and the heater head, and

wherein the wing plate is disposed on both sides of the base plate to be bent from the base plate.

14. The method according to claim 13,

wherein the part of the flexible printed circuit board is pressed and heated by the heater head through the base plate so that the part is melted in the step of heating the flexible printed circuit board by using the heater head,

wherein other part except for the melted part is not melted in the step of heating the flexible printed circuit board, and

wherein the melted part is surrounded by the other non-melted part, the printed circuit board and the base plate so that the thermoplastic resin composing the melted part does not flow out in the step of heating the flexible printed circuit board.

15. The method according to claim 13,

wherein the printed circuit board is rigid,  
wherein the thin plate is made of SUS stainless steel,  
wherein the jig further includes a heat sink made of copper,  
and

wherein the wing plate is mounted on the heat sink so that  
heat of the wing plate is conducted to the heat sink.

16. The method according to claim 15,  
wherein the base plate does not directly contact the heat sink  
so that the thin plate has a temperature distribution in such a manner  
that temperature of the base plate is higher than that of the wing  
plate.

17. The method according to claim 15, further comprising:  
an electrode for supplying electricity to the heater head,  
wherein the heater head is mounted on the electrode, and  
wherein the jig is movably supported by the electrode through  
an installation member so that the jig is movable in a direction  
perpendicular to the base plate.

18. The method according to claim 17,  
wherein the heat sink is cooled by an air supplied from an  
outside fan.

19. The method according to claim 18,  
wherein the heat sink includes a notch,  
wherein the installation member is made of insulation material,

and includes a through hole, and

wherein the air is introduced to the heat sink through the notch and the through hole.

20. The method according to claim 13, further comprising the step of:

cooling the heater head and the melted part of the flexible printed circuit board after the step of heating the flexible printed circuit board.

21. The method according to claim 13, further comprising the steps of:

adhering the printed circuit board on an attachment table through an elastic sheet; and

preliminarily heating the printed circuit board.